

ABSTRACT

1 An intraoperative neurophysiological monitoring system includes an adaptive
2 threshold detection circuit adapted for use in monitoring with a plurality of electrodes
3 placed in muscles which are enervated by a selected nerve and muscles not enervated by
4 the nerve. Nerve monitoring controller algorithms permit the rapid and reliable
5 discrimination between non-repetitive electromyographic (EMG) events repetitive EMG
6 events, thus allowing the surgeon to evaluate whether nerve fatigue is rendering the
7 monitoring results less reliable and whether anesthesia is wearing off. The intraoperative
8 monitoring system is designed as a "surgeon's monitor," and does not require a
9 neurophysiologist or technician to be in attendance during surgery. The advanced features
10 of the intraoperative monitoring system will greatly assist neurophysiological research
11 toward the general advancement of the field intraoperative EMG monitoring through post-
12 surgical analysis. The intraoperative monitoring system is preferably modular, in order to
13 allow for differential system pricing and upgrading as well as to allow for advances in
14 computer technology; modularity can also aid in execution of the design.